

WU
18
L581a
1922

**ANSWERS
TO STATE BOARD
QUESTIONS
FOR DENTAL HYGIENISTS
—LEONARD**

WU 18 L581a 1922

50510370R



NLM 05262551 4

NATIONAL LIBRARY OF MEDICINE

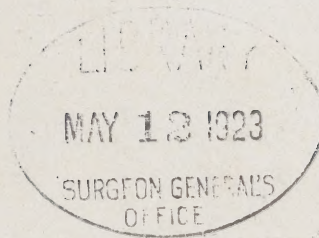
SURGEON GENERAL'S OFFICE
LIBRARY.

Section _____

No. 113,
W. D. S. G. O.

No. 245099

3-513

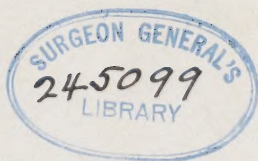


ANSWERS
TO STATE BOARD QUESTIONS
FOR DENTAL HYGIENISTS

BY DR. EDWARD J. LEONARD

DIRECTOR, CLASS IN DENTAL HYGIENE OF HARTFORD;
FORMERLY DENTAL SUPERVISOR,
SOUTH DISTRICT PUBLIC SCHOOLS,
HARTFORD, CONN.

[Hartford, Conn., 1922]



WU
18
L-581-2
1922

Copyright 1922 Edward J. Leonard ✓

JAN -6 1923 ✓

Press of
E. S. Ptg. Co.
Hartford, Conn.

©CIA692733^c

no r

To M. L. R., lover and condenser of facts

FOREWORD.

The questions contained in this book have been gathered from the examinations of dental hygienists by schools and examining Boards. The answers, obtained from standard sources, in many instances have been condensed or revised to serve the need of brevity but without, it is believed, sacrifice of clearness. References would prove so cumbersome that they have been generally omitted.

To those who have aided in various ways in the preparation of this work the author wishes to express his thanks.

E. J. L.

CONTENTS.

CHAPTER I

ANATOMY AND HISTOLOGY	5-27
-----------------------------	------

CHAPTER II

PHYSIOLOGY	28-39
------------------	-------

CHAPTER III

BACTERIOLOGY	40-41
--------------------	-------

CHAPTER IV

DENTAL CARIES AND MALOCCLUSION	45-50
--------------------------------------	-------

CHAPTER V

DENTAL PATHOLOGY	51-53
------------------------	-------

Pyorrhea Alveolaris	53
---------------------------	----

CHAPTER VI

ORAL PROPHYLAXIS	54-57
------------------------	-------

CHAPTER VII

MISCELLANEOUS	58-60
---------------------	-------

Anesthesia Assisting	58
----------------------------	----



INDEX

A

Absorption, defined, 33
Adenoids, defined; effect of, 59
Alimentary Tract, Divisions of, 8
 " " Secretions of, 30
 " " Subdivisions of, 8
Alveolar Process, Description of, 21
Amboceptor, defined, 43
Anesthesia, defined, preparations for, 58-59
Anesthetic, local, 59
Angle's Classification, 48
Antigen, defined, 43
Antiseptic, defined, 42
Antitoxin, defined, 41
Apnea, defined, 29
Arch, Zygomatic, 10
Artery, Difference between vein, 8, 14
Articulation, Temporo-Mandibular, 9, 15
Assimilation, defined, 34

B

Bacteria, Essentials to life of, 44
 " Aerobic, 41
 " Anaerobic, 41
 " Classification of, 40
 " How multiply, 43
 " Development in mouth of, 42
Bacterial Plaque (Gelatinous Film, etc.), 45
 " " How located, 55
Bacteriology, defined, 40
Bile, Description of, 32
Bicuspsids, Upper 1st and 2nd, 18
Blastoderm, defined, 22
Blood, functions of, constituents of, 28
 " Coagulation of, 28
Blood Pressure, 29
 " Specific Gravity of, 28
Body, Systems of, Tissues of, 5
Buccinator Muscle, Origin, Insertion of, 10

C

Calcification, defined, 11
Calorie, defined, 34
Caries, Dental, defined, 45
 " Miller's Theory of, 45
 " Relation of Diet to,
 " Causes and conditions of, 45-46
Carotid, Location of Common, 11
Cell, Description of, Division of, 24
Cementum, Description of, 21
 " Bone and, 27
 " Function of, 37
Chyle, Description of, 31
Chyme, Description of, 31
Circulation, Portal, 32
Complement, defined, 43

INDEX

Congestion, defined, 51
Corpuscles, Red, 8, 28
 " White, 8, 28
Cranial Nerves, Names of, 16
Cranium, Bones of, 16
Culture Media, Description of, 40
Cuspids, Upper and Lower, 17
 " In Occlusion, 49

D

Deciduous (See under Teeth)
Deglutition, Description of, 32
 " Muscles of, 33
Dental Follicle, defined, 25
 " Hygiene, Law Relating to, 57
 " Hygienist, Dangers to hand of, 42
 " Papilla, defined, 25
 " Ridge, defined, 25
 " Tissues, Blood and Nerve Supply, 15
Dentin, Causes of sensation in, 59
 " Description of, 23
 " Secondary, 21
Diaphragm, Description of, 16
Diet, Dental Caries and, 36
Digestion, Gastric, 31
Disinfectants, Three efficient, 41
 " defined, 42

E

Embryo, defined, 27
Enamel, Description of, 23
Enzyme, Description of, 36
Epithelium, Description of, 25
 " Varieties of, 25
Erosian, defined, 46
Eustachian Tube, Description of, 6

F

Faces, Bones of, 6
Facial Expression, Muscles of, 16
Fats, Where absorbed, 31
Ferment, Amyolytic, 30
Fibers of Tones, 26
Food, defined, classified, 35
 " Absorption of, 33
Fifth Nerve, Description of, 13
 " " Ganglia of, 15

G

Gasserian Ganglion, Description of, 12
Gingivitis, defined, 51
Green Stains, Cause and effect of, 55
Groove, Primitive Dental, 22

INDEX

Gums, Description of, 21
 " Massage of, 55
 " Color of, 54
 " Congestion of, 57
Gum Margin, defined, 55
Glycogen, Described, 32

H

Healing, First Intention, 52
Head, Blood Supply, 14
 " Nerve Supply, 14
Heart, Description of, 12
 " Valves of, 11
Hemoglobin, Description of, 29
Histology, defined, 11, 22

I

Internal Maxillary Artery, 15
Inferior Dental Artery, 15
 " " Nerve,
Inferior Maxillary Nerve, 17
Immunity, defined, 42
Incisors, Labial Surface of, 18
Incline Plane, defined, 48
Infection, defined, etc., 41
Inflammation, defined, classified, 52
Infra-Occlusion, defined, 48
Irregularities, Causes of, 48
Interglobular Spaces, 26
Instruments, Disinfection of, 40

J

Jaws, Development of, 25

K

Kidneys, Purpose of, 39
Koch's Law, 40

L

Leukocyte, Described, 41
Leukocytosis, defined, 29
Lines of Schreger, 26
Liver, Functions of, 32
Lymph, Origin, Uses, 31
Lymphatic Glands, 8
 " System, 14

M

Malocclusion, defined, etc., 47-50, 59
Mandible, Part limiting motion of, 9
 " Description of, 7
 " Muscles pulling downward, 14
Mastication, Nutrition and, 35
 " Muscles of, 27
Maxilla, Description of Superior, 7

INDEX

Membranes, Varieties of, 13
Metabolism, defined, 33
 " Nervous System and, 34
Milk, Value of, 33
 " Ferment of, 29
Molar, Lower First, 18
 " Upper First, 19
Mouth, Bones forming framework of, 6
 " Mucuous Membrane of, 22
 " Muscles of floor of, 10
Masseter Muscle, Functions of, 33

N

Nasal Fossae, Bones forming, 10
Nasmyth's Membrane, Description of, 26
Necrosis, defined, 53
Neuralgia, defined, 51
Neurone, defined, 38
Neuman's Sheath, Description of, 26
Nutrition, defined, 35

O

Occlusion, defined, 48
Odontalgia, 51
Odontoblast, defined, 24, 26
Oral cavity, Boundaries of, 6
 " " Lining of, 22
Orbital cavity, Bones of, 9
Orthodontia, defined, 49; value of, 59
Osteoblast, defined, 24
Osteoclast, defined, 24
Osmosis, defined, 29

P

Pacifier, Effect upon teeth by use of, 49
Palate, Description of soft, 6
Palate Bones, Description of, 6
Pancreatic Juice, Enzymes of, Actions of, 30
Parasite, Definition of, 41
Pathology, defined, 52
Patient, Instructions to, 56
Pericementitis, defined, 51
Peridental Membrane, 23
Perichondrium, Description of, 10
Periostitis, defined, 53
Peristalsis, defined, 38
Pharynx, Openings into, 9
Phagocytosis, defined, 44
Pocket, defined, 55
Porte Polisher, 57
Prophylaxis, defined, 54
Protoplasm, Description and Functions of, 22
Pulp, Description of, 16, 38
Pulpitis, defined, 57
Pulse Rate, Normal, 29
Pyogenic, defined, 41
Pyorrhea Alveolaris, 53

INDEX

R

Reflex, defined, 38
Refracting Media, Name of, 17
Residual Air, Definition of, 29
Respiration, 29-30
Rubber Dam, Disinfection of, 40

S

Saliva, Action upon foods, 30
“ Description of, 30
“ Definition of stringy, 47
“ Type of stimulation most effective in influence on, 34
“ Varieties of, 31
Salivary Glands, Description of, 5
Saprophyte, defined, 41
Secretion, defined,
Septicemia, defined, 52
Sensation, Phenomena of, 37
Sequestrum, defined, 53
Sinus, Description of, 21
Sinuses, Description of maxillary, 20
Skeleton, Bones of, Classification of, 5
Spores, defined, 40
Sterilization, Definition of, 41
“ Method of, 43
Stomatitis, Definition and varieties, 52
Suppuration, defined, 52
Surgical Shock, defined, 59
Syncope, Definition and treatment of, 58
Syphilis, Manifestations in mouth of, Cause of, 43

T

Tartar, 47, 54
Taste Buds, Location of, 28
Teeth, Nerve Supply of Upper and Lower, 5
“ Cleaning approximal surfaces of, 57
“ Result of early extraction of, 49, 56
“ Difference between Temporary and Permanent, 18
“ Shedding of Deciduous, 27
“ Time of Eruption of, 19
Tongue, Blood and Nerve Supply, 9
“ Description of, 12
“ Muscles of, 16
Tooth, Calcification of, 26
“ Germ, defined, 25
Tonsils, Varieties of, 8
Toxin, defined, 41
Trachea, Description of, 14

V

Vitamins, defined, 35

W

Wounds, Healing of, 52

X

X-Ray, Principle of, 58

Z

Zygomatic Arch, Muscles passing under, 10

CHAPTER I.

ANATOMY

NAME THE PRINCIPAL TISSUES OF THE BODY.

Epithelial, Muscular, Nervous and Connective.

HOW MANY BONES IN THE SKELETON? HOW CLASSIFIED?

206. They are classified as long, short, flat and irregular.

NAME THE VARIOUS SYSTEMS FOUND IN THE HUMAN BODY.

Skeletal, Respiratory, Alimentary, Muscular, Vascular, Excretory, Nervous, Reproductive.

DESCRIBE THE SALIVARY GLANDS.

The *Parotid gland* lies upon the face, immediately below and in front of the ear, limited above by the zygoma. It empties its secretion into the mouth by way of *Stenson's duct*, which runs parallel with the zygoma and pierces the buccinator muscle and the mucous membrane of the cheek opposite the second molar tooth. The *submaxillary gland* is below the jaw in the submaxillary triangle; it is irregular in form and weighs about two drams. *Wharton's duct* is about two inches long. It passes forward and inward and opens by the side of the frenum of the tongue. The *sublingual gland* is situated beneath the mucous membrane of the floor of the mouth by the side of the frenum, in contact with the inner surface of the lower jaw. The *ducts of Rivinus*, eight to twenty in number, open on the floor of the mouth on each side of the frenum; one larger duct opens into Wharton's duct and is called the *duct of Bartholin*.

GIVE NERVE SUPPLY OF THE UPPER AND LOWER TEETH.

The nerve supply of the upper teeth is derived from the second division of the fifth nerve through posterior, middle and anterior superior dental branches. The lower teeth are supplied by the inferior dental branch of the third division of the fifth nerve.

DESCRIBE THE EUSTACHIAN TUBE AND GIVE ITS FUNCTION.

This canal begins at the anterior end of the middle ear cavity, passes downward, forward and somewhat inward to the nasopharynx. It is about an inch and a half in length. The function of the Eustachian tube is to keep the air in the middle ear of the same density as that of the exterior.

WHAT BONES FORM THE FRAMEWORK OF THE MOUTH?

The bony framework of the mouth is formed by (a) the superior maxillary bones, (b) the palate bones, and (c) the inferior maxillary bone or mandible.

GIVE THE BOUNDARIES OF THE ORAL CAVITY.

The oral cavity is bounded in front by the lips, laterally by the cheeks, above by the hard and soft palate, and below by the mylohyoid and genio-hyoid muscles which form the floor.

DESCRIBE THE PALATE BONES.

There are two palate bones. In form they are likened to the letter "L". Their upright portion, called the verticle plate, helps to form the outer wall of the nasal cavity. The bones corresponding to the base of the "L" is called the horizontal plate and articulates anteriorly with the palate process of the superior maxilla, thus aiding in the formation of the floor of the nose and the roof of the mouth. Posteriorly the horizontal plate ends in the free border to which is attached the soft palate.

DESCRIBE THE SOFT PALATE.

This structure is attached to the posterior border of the hard palate and is formed by five different muscles. These are in turn covered with mucous membrane.

NAME THE BONES OF THE FACE.

Two nasal, Two lacrimal, One vomar, Two malar, Two palate, Two inferior turbinated, Two maxilla and One Mandible.

DESCRIBE THE GUSTATORY NERVE.

It is a branch of the posterior division of the inferior maxillary portion of the fifth nerve. It is situated posterior to the external pterygoid muscle, and just before it enters the side of the tongue, it is joined by the *Chorda tympani nerve*, a branch of the seventh (facial). It supplies the anterior two-thirds of the tongue with common sensation.

DESCRIBE THE MANDIBLE.

The inferior maxillary bone consists of a horse-shoe-shaped body and two rami. Each ramus is prolonged into two processes—one, the coronoid process, and the other the condyloid process. Between the two is situated the *sigmoid notch*. The portion of the body into which the teeth are inserted is called the *alveolar margin*. On the inner surface of the ramus is situated the *inferior dental foramen*. This canal continues through the center of the bone until it reaches the *mental foramen*, which is situated on the external surface of the jaw, opposite the canine tooth. The line of union of the two sides is called the *symphysis*. On the posterior surfaces of the symphysis are situated the genial tubercles.

DESCRIBE THE SUPERIOR MAXILLA.

The bone consists of a hollow body and four processes. The body is cuboidal in form and hollowed out in the center into a pyramidal cavity, called the antrum of Highmore. It has *four surfaces*, an external, which looks forward and outward; a posterior convex surface, which forms part of the zygomatic fossa; a superior surface (orbital plate), which forms part of the floor of the orbit; and an internal, which forms part of the outer wall of the nasal fossa and the mouth. The bone has *four processes*: Malar, nasal, alveolar and palatine. It articulates with the following bones: the opposite maxilla, tuberosity of the palate by the posterior outer border, the palate in the floor of the orbit, the ethmoid, lacrimal, malar, nasal, and inferior turbinated.

DESCRIBE CONNECTIVE TISSUE.

It is of mesodermic origin and is composed of cells and inter-cellular substance, the latter being in excess of the cellular elements. Connective tissue cells are round, spindle shaped, stellate and fusiform. It is the most widely distributed tissue in the body.

DESCRIBE (A) RED CORPUSCLE (B) WHITE CORPUSCLE.

A red corpuscle is a bi-concave disk containing no nucleus. It measures about $1/3200$ in. in diameter.

The white blood cells or leucocytes are $1/2500$ in. in diameter, nucleated and contain glycogen, fat nuclein, etc. There are several varieties grouped as lymphocytes and leukocytes.

NAME THE SUBDIVISIONS OF THE ALIMENTARY CANAL.

Mouth, pharynx, esophagus, stomach, duodenum, jejunum, ileum, ascending, transverse, descending and sigmoid colon, rectum and anus.

WHAT IS THE STRUCTURAL DIFFERENCE BETWEEN AN ARTERY AND A VEIN?

Veins have much thinner walls than the arteries. They contain valves and there is more endothelial lining than in the arteries.

WHAT ARE LYMPHATIC GLANDS?

They are globular, ovoid, flattened bodies, consisting of fibrous framework, lymph sinuses and lymph follicles. They form part of the general lymphatic system.

NAME THREE VARIETIES OF TONSILS? AND GIVE THE LOCATION OF EACH.

The *pharyngeal tonsil* (adenoid), when present, is found on the posterior wall of the naso-pharynx. The *lingual tonsil*

is situated on the posterior surface of the tongue. The *faucial* or *true tonsils* are situated between the anterior and posterior palatine arches. The blood supply of the true tonsils come from the ascending pharyngeal, and ascending and descending palatine arteries.

WHAT BONES FORM THE ORBITAL CAVITIES?

Frontal, Ethmoid, sphenoid, two superior maxillary, two lacrimal, two palate, two inferior turbinated and vomer.

NAME THE BONES FORMING THE HARD PALATE.

Palate bones, palatal processes of the superior maxillae.

WHAT BONY PART LIMITS THE FORWARD MOTION OF THE TEMPORO-MANDIBULAR ARTICULATION?

The glenoid fossa, the articulating eminence of the temporal bone and the condyle of the mandible.

WHAT BONY PART LIMITS THE FORWARD MOTION OF THE MANDIBLE?

The eminentia Articularis.

GIVE THE CLASSIFICATION OF THE TEMPORO-MANDIBULAR ARTICULATION.

Diarthrosis or movable.

GIVE THE BLOOD AND NERVE SUPPLY TO THE TONGUE.

Lingual and ascending pharyngeal arteries. Motor nerve, twelfth, Special sense, ninth, and chorda tympani from the seventh. Common sensation, lingual branch of the third division of the fifth.

NAME THE SEVEN OPENINGS INTO THE PHARYNX.

Larynx, mouth, esophagus, two eustachion tubes, and two posterior nares.

DESCRIBE THE INFERIOR DENTAL NERVE.

It is a branch of the inferior maxillary division of the fifth nerve. With the artery it enters the inferior dental canal, supplies the teeth and at the mental foramen divides into incisor and mental branches; the latter supplies the chin and lower lips. Its branches are the dentals to molars and bicuspid teeth, and mylohyoid to mylohyoid and digastric muscles.

WHAT MUSCLES FORM THE FLOOR OF THE MOUTH?

Mylo-hyoid and hypoglossus.

GIVE THE ORIGIN INSERTION AND ACTION OF THE BUCCINATOR MUSCLE.

ORIGIN: Pterygo-maxillary ligament and alveolar portions of the superior and inferior maxillary bones. INSERTION: Upper fibers assist in forming the lower portion of the orbicularis oris; lower fibers form the upper portion of the orbicularis oris. ACTION: To draw the angle of the mouth backward, keep the food between the teeth in mastication, and assist in the formation of sounds.

WHAT IS PERICHONDRIUM?

A fibrous investment surrounding cartilage.

WHAT BONES ENTER INTO THE FORMATION OF THE NASAL FOSSAE?

Frontal, sphenoid, ethmoid, two nasal, two superior maxillary, two lacrimal, two palate, two inferior turbinated, and vomer.

DESCRIBE THE ZYGOMATIC ARCH? NAME THE MUSCLE THAT PASSES UNDER IT.

The zygomatic arch is formed by the zygomatic process of the temporal bone uniting with a like process from the malar bone. The temporal muscle passes under it.

WHAT IS HISTOLOGY?

Histology is the study of the minute structure of normal tissue.

WHAT IS CALCIFICATION?

It is the process by which tissue becomes infiltrated with lime salts.

GIVE THE LOCATION OF THE COMMON CAROTID, RADIAL AND FEMORAL ARTERIES.

The left common carotid arises from the middle of the arch of the Aorta; the right common at the division of the innominate. They ascend obliquely on either side of the neck until, on a level with the upper border of the laryngeal prominence, they divide into the external carotid and the internal carotid.

The radial artery extends from the brachial along the outer side of the front of the forearm as far as the lower end of the radius. It terminates in the deep palmar arch.

The femoral artery lies in the upper three fourths of the thigh, its limits being marked above by the inguinal ligament and below by the opening in the great adductor muscle.

NAME THE VALVES OF THE HEART, THEIR POSITION AND FUNCTION.

The Eustachian valve: situated below the opening of the inferior Vena Cava.

The Tricuspid valve: guards the orifice of the same name on the right side of the heart.

The Mitral valve: guards the left auriculo-ventricular or mitral orifice.

The semilunar valves: are situated at the opening of the right ventricle into the pulmonary artery.

The valves of the heart prevent regurgitation of the blood in its passage.

GIVE A BRIEF DESCRIPTION OF THE HEART.

The heart is a muscular organ situated in the thorax between the lungs and above the central depression of the diaphragm. It is conical in shape and about the size of the closed fist. Enclosing it is a membranous sac called *pericardium*. The heart is divided into the right and left half by a fixed partition. Each half is subdivided into two cavities, the upper called *auricle*, the lower, *ventricle*. The muscular walls of the the auricles are much thinner than those of the ventricles, and the wall of the left ventricle is thicker than that of the right.

The *auricles* and *ventricles* communicate with other by means of restricted openings protected by valves.

The right auriculo-ventricular valve is called the *tricuspid*. The valves between the ventricles and the aorta and pulmonary artery are named *semilunar*.

Continuous with the blood vessels, and lining all cavities of the heart is a smooth, delicate membrane called *endocardium*. The heart receives its blood supply from the *right* and *left coronary* arteries. Its nerve supply is derived (1) from the vagi nerves of the central nervous system and (2) from the pneumogastric.

BRIEFLY DESCRIBE THE GASSERION GANGLION.

The Gasserion Ganglion is situated on the floor of the middle fossa of the skull just behind the foramen Ovale. It receives the sensory root of the Trifacial nerve and *divides* into an *ophthalmic*, or first division, the *superior maxillary*, or second division, and an *inferior maxillary*, or third division.

DESCRIBE THE TONGUE.

The tongue is a muscular organ composed of a *root*, a *body* and an anterior extremity or *tip*. It is made up of five muscles and is covered with mucous membrane. Underneath it is attached to the floor of the mouth by a fold of membrane called the *frenum*. The base of the tongue is attached to the hyoid bone and to the muscles of the pharynx. The *papillae*

are found on the surface of the tongue, the most important being the *circum vallate papillae*; these are situated on the back part of the tongue, are arranged in the form of a "V", about eight to twelve in number. At the base of the papillae are located the *taste buds* transmitting the sense of taste. The *lingual tonsil*, composed of lymphoid tissue, is situated behind the circumvallate. Nerve supply: special sense, the glossopharyngeal and the chorda tympani; common sensation: the trifacial motor, hypoglossal, or twelfth cranial.

BRIEFLY DESCRIBE THE FIFTH NERVE

The first two divisions of the trifacial nerve are sensory, the third retaining both sensory and motor fibers. It arises from the side of the Pons by two roots, the motor and sensory. Upon the sensory root is situated the Gasserion Ganglion, which rests upon the petrous portion of the temporal bone. The Gasserion Ganglion has three divisions: ophthalmic, superior maxillary and inferior maxillary.

The *ophthalmic division* leaves the skull through the sphenoidal fissure and divides into frontal, nasal and lacrimal branches. The *superior maxillary division* leaves the skull through the foramen rotundum, enters the sphenomaxillary fossa, there assists in the formation of Meckel's ganglion, and enters the orbit through the sphenomaxillary fissure, leaving the orbit through the infra-orbital canal, and appearing upon the surface of the face at the infraorbital foramen. The *inferior maxillary division* is joined by the motor root, leaves the skull through the foramen ovale, divides into the anterior and posterior divisions, and supplies the muscles of mastication, the tongue, lower jaw and a portion of the face.

NAME THE VARIOUS KINDS OF MEMBRANES AND DESCRIBE ONE.

Serous, Synovial, Mucous and Cutaneous.

The mucous membrane is the soft, red, vascular tissue which communicates with the skin at all the openings leading to or from the interior of the body.

DESCRIBE THE TRACHEA.

The trachea is a cylindrical tube, about $4\frac{1}{2}$ inches long, which extends from the larynx to the upper part of the thorax, dividing into the two bronchi. Structurally it is composed of muscular and fibrous tissue with from fifteen to twenty incomplete rings of cartilage embedded in the fibrous tissue and situated one above the other.

MENTION SOME DIFFERENCES BETWEEN VEINS AND ARTERIES.

The veins are provided with valves; the arteries, with the exception of the aorta and pulmonary artery at their cardiac connection, are not; the walls of veins are thinner than those of arteries; the arteries generally carry aerated blood, veins blood containing less oxygen and more carbon dioxide.

WHICH OF THE ARTERIES SUPPLIES THE HEAD WITH BLOOD?

The left common carotid, together with right common carotid, which opens from the innominate.

NAME THE PARTS OF THE LYMPHATIC SYSTEM.

The lymphatic spaces, vessels, glands and ducts.

WHAT IS THE GREAT MOTOR NERVE OF THE HEAD? WHAT IS THE GREAT SENSORY NERVE OF THE HEAD?

The Seventh Cranial Nerve.

The Fifth Cranial Nerve.

NAME THE MUSCLES THAT PULL THE MANDIBLE DOWNWARD.

Genio-hyoid, genio-hyo-glossus, mylo-hyoid, Digastric, and Platysma myoides.

GIVE THE BLOOD AND NERVE SUPPLY TO THE DENTAL TISSUES.

NERVE SUPPLY: The trifacial or fifth cranial and the facial or seventh cranial.

BLOOD SUPPLY: The internal maxillary artery, a branch of the external carotid artery.

DESCRIBE THE TEMPORO MAXILLARY ARTICULATION.

This is a sliding hinge joint and is formed by the glenoid fossa on the base of the skull and the condyle of the mandible. The glenoid fossa is somewhat cup-shaped and is limited anteriorly by a ridge, *the eminentia articularis*. This aids the ligaments of the joint in restricting the forward slide of the mandible. Lying between the condyle and the fossa is the inter-articular fibro-cartilage. The capsular ligament encloses the entire joint in a fibrous sheath. Four strong fibrous ligaments help to maintain the proper position of the condyle.

NAME THE BRANCHES OF THE INTERNAL MAXILLARY ARTERY.

The middle meningeal artery, the mandibular or inferior dental artery, the sphenomaxillary, the infraorbital artery, the descending palatine artery, the sphenopalatine artery and the dentals.

NAME THE GANGLIA CONNECTED WITH THE FIFTH PAIR OF CRANIAL NERVES.

Gasserion, ophthalmic, sphenopalatine (Meckel's), otic and sub-maxillary.

DESCRIBE THE INFERIOR DENTAL ARTERY.

It is a branch from the first portion of the internal maxillary artery. It passes into the inferior dental canal and supplies

all the lower teeth, finally leaving the canal at the mental foramen, where it becomes the *mental artery*.

NAME THE TWELVE PAIRS OF CRANIAL NERVES.

Olfactory, Optic, motor oculi, trochlear, trigeminal, abducens, facials, auditory, glossopharyngeal, pneumogastric, spinal accessory, and hypoglossal.

NAME THE MUSCLES OF THE TONGUE.

Lingualis, genio-hyo-glossus, hypo-glossus, stylo-glossus, palato-glossus.

NAME THE CHIEF MUSCLES OF FACIAL EXPRESSION.

Olfactory, optic motor oculi, trochlear, trigeminal, abducens, oris, levator labii superioris alaeque nasi, platysma myoides.

NAME THE BONES OF THE CRANIUM.

Occipital, two parietal, frontal, two temporal, sphenoid, and ethmoid.

WHAT IS THE DIAPHRAGM?

The diaphragm is a thin, musculo-fibrous partition which divides the ventral cavity of the body into the thoracic cavity (above) and abdominal cavity (below).

DESCRIBE THE DENTAL PULP AND GIVE ITS FUNCTIONS.

The dental pulp is made up of connective tissue and supplied by blood vessels, nerves and lymphatics. It completely fills the chamber or hollow of the tooth. The odontoblasts or dentin forming cells lie along its periphery in contact with the dentin walls.

It has a two fold function: (a) The formation of dentin (b) It transmits thermal changes and gives the sensation of pain when irritated.

NAME THE REFRACTING MEDIA.

Aqueous humor, Crystalline lens and Vitreous humor.

NAME THE COATS OF THE EYEBALL.

Outer or fibrous, Middle or vascular, Inner or nervous.

TRACE THE INFERIOR MAXILLARY DIVISION OF THE FIFTH NERVE.

It emerges from the cranium through the foramen ovale. This motor root and sensory nerve is now located in the zygomatic fossa. One of these divisions contains nearly all the motor fibers and is distributed to the muscles of mastication, excluding the buccinator. The other containing but few motor fibers and made up mostly of sensory ones, divides into three branches: (a) the *auriculotemporal*, which supplies the tissues about the ear, the temporo-mandibular articulation and sends communicating branches to facial (seventh cranial) nerve; (b) the *lingual* which, supplies common sensation to the tongue and which is joined by the chorda tympani branch of the facial nerve; (c) the *inferior dental nerve*. This branch enters the mandibular canal in the body of the inferior maxillary bone, traverses its entire length and emerges through the mental foramen as the mental nerve to supply sensation to the surrounding tissues. While in the mandibular canal minute branches are given off to the various lower teeth.

Just as the inferior dental nerve is about to enter the mandibular canal it gives off quite a large branch, the mylohyoid nerve. This contains motor fibers and passes downward to supply the mylohyoid and digastric muscles. The inferior dental nerve also sends branches to two ganglia, the otic and sub-maxillary, furnishing them with their sensory roots.

STATE THE POINTS OF DISTINCTION BETWEEN THE UPPER AND LOWER CUSPIDS.

The crown of the lower cuspid is more delicate in shape and slightly larger than the upper. Its root is more flattened mesially and distally.

GIVE THE POINTS OF DISTINCTION BETWEEN AN UPPER FIRST AND SECOND BICUSPID.

The first bicuspid is larger; the buccal cusp is larger than the lingual and the angles more acute. The second bicuspid is smaller, the cusps more nearly the same size buccally and lingually.

DESCRIBE THE LABIAL SURFACE OF THE INCISORS.

The surface is convex with two grooves running vertically called the *developmental grooves*. The borders are convex with a distinct ridge at the gingivus. The *mesio-incisal* angle is sharp, the *disto-incisal* angle rounded.

DESCRIBE THE OCCLUSAL SURFACE OF A LOWER FIRST MOLAR.

The occlusal surface of the lower first molar is irregularly cuboidal in form and presents five cusps, three buccal and two lingual.

Two grooves separate the buccal cusps, namely, mesio-buccal and distal; these extend over on to the buccal surface. The lingual cusps are separated by the lingual groove. On the forepart of the surface two sulci come from the central fossa and fork buccally and lingually. These are the mesio-lingual triangular groove and the mesio-buccal triangular groove.

The surface occludes with the upper second bicuspid and the upper first molar.

GIVE THE GENERAL DISTINGUISHING POINTS BETWEEN THE TEMPORARY AND PERMANENT TEETH.

The temporary teeth are smaller and their cusps not so well defined. The molars and cuspids are larger at the neck than at the occlusal aspect. The permanent teeth have a deep color while the temporary teeth are invariably light in hue.

HOW MANY ROOT CANALS HAVE THE FOLLOWING:
(A) UPPER 1ST BICUSPID, (B) LOWER FIRST MOLAR,
(C) LOWER SECOND BICUSPID, (D) UPPER SECOND
MOLAR?

(A) Two; (B) Three; (C) One; (D) Three.

GIVE THE TIME OF ERUPTION OF THE TEMPORARY
TEETH.

Central incisors, 6th to 8th month.

Lateral incisors, 8th to 10th month.

First molars, 10th to 16th month.

Cuspids, 16th to 20th month.

Second molars, 20th to 30th month.

GIVE THE TIME OF ERUPTION OF THE PERMANENT
TEETH.

First molars, 5th to 7th year.

Central incisors, 6th to 8th year.

Lateral incisors, 7th to 9th year.

First bicuspid, 8th to 10th year.

Lower cuspids, 9th to 11th year.

Second bicuspid, 10th to 12th year.

Upper cuspids, 11th to 13th year.

Second molars, 12th to 14th year.

Third molars, 17th to any time.

DESCRIBE AN UPPER FIRST MOLAR.

This tooth presents a crown and three roots. The crown has five surfaces.

Buccal Surface: This surface is convex and a modified rectangle in form. The occlusal border is surmounted by two cusps, the mesio-buccal and the disto-buccal; dividing these is the buccal groove which often has a pit in the center. The

surface has four point angles and four line angles.

Lingual Surface: This surface resembles the buccal except that the mesial and distal borders converge towards the gingival border about equally where they join the wide diameter of the lingual root.

Mesial Surface: This surface at the occlusal third is convex while the gingival two thirds is straight or concave.

Distal Surface: Similar to the mesial tho perhaps in general a little more convex.

Occlusal Surface: Is irregularly rhomboidal, the acute angles being the mesio-buccal and the disto-buccal. It presents four cusps, sometimes a fifth. The two buccal cusps are called the mesio-buccal, and the disto-buccal; the two lingual, the mesio-lingual and the disto-lingual, the mesio-lingual is the mesio-lingual and the disto-lingual, the mesio-lingual the largest cusp. The first groove across the surface starts at the mesial end passes distally and buccally to the interval between the two cusps, where it is continued over on the buccal surface as the buccal groove. The *triangular ridge* from the mesio-lingual cusp to the disto-buccal cusp is well developed. The *second groove* begins between the two lingual cusps and runs distally and buccally to the center of the distal margin.

The Roots: They are three in number, two buccal and one lingual. The lingual is the largest root and the disto-buccal the smallest. The apices of the two buccal roots tend to converge towards each other.

The Pulp Cavity: Resembles the form of the crown. On the floor of this chamber are three openings leading into three *root canals*.

GIVE A DESCRIPTION OF THE MAXILLARY SINUSES.

The maxillary sinuses are situated within the bodies of the superior maxillary bones, external to the nose and below the orbits. In shape they are somewhat pyramidal, with their bases directed toward the nose and the apices at the prominence of the cheek. They open into the middle meati of the nose at points known as the infundibula. They are lined with a mucous membrane which is directly continuous with that of the nose and is covered with ciliated epithelium. Often the roots of the molar and bicuspid teeth form elevations on the floors of the sinuses.

WHAT IS A SINUS? NAME THE SINUSES OF THE SKULL.

A cavity in the bones of the skull, reducing the weight of the bone in the region of the mouth and nose and rendering bone more resonant for the purpose of speech.

Maxillary, sphenoidal, frontal, anterior, middle and posterior ethmoidal, mastoid.

BRIEFLY DESCRIBE THE ALVEOLAR PROCESS.

The alveolar process of both mandible and maxillae are made up of a cancellated variety of bone. There is a dense layer of bone surrounding the teeth of the maxillae, being the thickest lingually; the incisors and cuspids present a thick layer labially; the buccal roots of the bicuspid and molars have a much thinner covering. The alveolar process is covered by a soft issue called the gums.

DESCRIBE CEMENTUM.

Cementum is a calcified connective tissue arranged in layers around the tooth root and slightly overlapping the enamel. The *lamellae* are the layers of the cementum, thin at the cervix and thickest at the apex. The *lacunae* are small spaces in the cementum; from these radiate small communicating canals called *canaliculi*. The cementoblasts are found in the lacunae. The cementum receives the imbedded fibers of the periodontal membrane.

WHAT IS SECONDARY DENTIN AND DESCRIBE ITS FORMATION.

Secondary dentin is an imperfectly formed tissue laid down by the pulp after the normal amount of dentin has been formed. It is due to an irritation of the odontoblasts.

DESCRIBE THE GUMS.

The gum tissue is composed of mucous membrane under which is a submucous tissue which lies on and is firmly attached to the periosteum of the bony process. The gum

tissue about the necks of the teeth is supported and held in position by fibers from the peridental membrane. The blood vessels and lymphatics of the gums anastomose freely with those of the peridental membrane.

WHAT IS HISTOLOGY?

Histology is the microscopic study of the structure of tissue.

WHAT IS PROTOPLASM?

It is the substance that makes up the body of the cell and is divided into spongioplasm and hyaloplasm.

WHAT FORM OF EPITHELIUM LINES THE ORAL CAVITY? FROM WHAT ELEMENTARY TISSUE IS IT DEVELOPED?

Stratified squamous. It is developed from the ectoderm.

DESCRIBE THE MUCOUS MEMBRANE LINING THE MOUTH.

The mucous membrane of the oral cavity consists of a primary layer of epithelium (stratified squamous) and underneath a connective tissue stroma (Tunica Propria) which gives place and support to the blood vessels, nerves and lymphatics. Lying between these two layers and separating them is found the submucosa.

WHAT IS THE BLASTODERM? (A) PRIMITIVE DENTAL GROOVE?

The Blastoderm is a cavity surrounded by embryonal cells formed from the morula. It consists of three layers, namely, *ectoderm*, *mesoderm*, and *entoderm*.

The Primitive Dental Groove is a longitudinal groove seen on the surface of the oral ectoderm which marks the point of attachment of the dental ridge.

GIVE A DESCRIPTION OF ENAMEL AND NAME ITS FUNCTIONS.

Enamel is a calcified tissue covering the exposed portion or crown of the tooth. It is derived from epithelium and is the hardest tissue in the body. Structurally it consists of prisms or rods held together by a *cementing substance*. The prisms run from the dentin to the surface in a straight or intertwined arrangement. The cementing substance like the prisms contain no organic substance but is more susceptible to injury. The enamel organ develops from within outward.

Functions: (1) Mechanically it is the hard contact organ in mastication. (2) It serves as a protection for the underlying dentin.

GIVE A MINUTE DESCRIPTION OF DENTIN.

Dentin is a calcified connective tissue containing both organic and inorganic matter. It is composed of the *Dentin Matrix*, the *dentinal tubules* and the *dentinel fibrils*. The tubules are surrounded by a very dense portion of the *matrix* called the *Sheath of Neuman*. The *dentinal tubules* are the minute tubes radiating from the pulp to end at the dento-enamel junction in delta-like formations which communicate with each other. In the root the tubes end in spaces between the cementum and dentin called the *granular layer of Tomes*. The *dentinal fibrils* are branching processes of the *odontoblasts* in the *dentinal tubules*.

Functions: It gives bulk and strength to the entire tooth, (2) It supports the enamel.

DESCRIBE BRIEFLY THE PERIDONTAL MEMBRANE STATING WHICH IS THE MOST VULNERABLE AREA AND WHY.

The peridental membrane is a composition of white fibrous connective tissue investing the root of the tooth. These fibers have been divided into three groups: *The gingival, alveolar and apical*. The first or gingival group, from a point of attachment in the cementum, pass into and mingle with fibers of

the connective tissue stroma of the gums. *Approximally* other fibers pass across and are attached to the cementum of the *adjoining tooth*. These fibers support the gum. Below these are a stronger bundle of fibers which pass from their cemental attachment and on the labial and lingual sides are joined to the periosteum covering the *alveolar process*. Approximally they may pass to the cementum of the adjoining tooth or attach themselves to the sides of the bone between the teeth. The uppermost fibers are arranged constrictor-like around the gum margin, holding this tissue in close contact with the neck of the tooth.

The Alveolar group extend from the apex to the top of the alveolus.

The Apical group fill in the apical space at the root end. *The Gingival Group* is the most important area of the peridental membrane because of its location being most susceptible to injury by foreign bodies and infection.

DESCRIBE A CELL.

A Cell is a mass of protoplasm usually nucleated. The protoplasm is composed of a liquid portion (hyaloplasm) and a fibrous network (spongioplasm).

DESCRIBE THE PROCESS OF CELL DIVISION.

Cell division takes place in two ways: (a) Direct or *amitosis* and (b) indirect or *mitosis*. In the direct method the cell divides into two, finally forming two separate cells. In the indirect or universal method the cell nucleus passes through a series of remarkable changes rather complicated.

DEFINE (a) Osteoblast; (b) Osteoclast; (c) Odontoblast.

An osteoblast assists in the calcification of bone.

An osteoclast is a variety of leucocyte which absorbs the calcified substance of bone.

An odontoblast is a dentin forming cell.

TO WHAT CLASS OF TISSUES DO THE TEETH BELONG?

With the exception of the enamel, the teeth belong to the connective tissue group.

NAME THE VARIETIES OF EPITHELIUM.

Simple, Transitional and Stratified.

WHAT IS EPITHELIUM AND WHERE FOUND?

Epithelium is an elementary tissue derived from ectoderm or entoderm. It is found lining all surfaces that communicate with the air.

DESCRIBE THE DENTAL RIDGE.

It is a thickening of the primitive oral epithelium over the alveolar margin from which the enamel germ is later developed.

WHAT IS (a) a tooth germ (b) Dental Papilla (c) Dental Follicle?

The *tooth germ* is the structure formed by the enamel organ and the dental papilla.

The *dental papilla* is a name given form assumed by the underlying tissues as the enamel organ develops. It finally assumes the shape of the future crown of the tooth.

The Fibrous wall enclosing the tooth germ, the papilla and the enamel organ constitute the *dental follicle*.

AT WHAT PERIOD OF THE EMBRYO DO THE TEETH START TO DEVELOP?

At about two and a half months.

DESCRIBE THE DEVELOPMENT OF THE JAWS.

Vertical growth, which is downward in the upper jaw and

upward in the lower and is coincident with tooth eruption.
Lateral growth, or expanding growth to allow for the difference in size between the teeth of the deciduous and permanent dentures.

Forward growth, to make room for the developing permanent molars.

WHAT IS NASMYTH'S MEMBRANE? (B) NEUMAN'S SHEATH?

It is an extremely delicate membrane enveloping the crown of the newly erupted tooth.

Neuman's Sheath is that more densely calcified portion of the dentinal matrix immediately surrounding the dentinal tubuli.

WHAT THREE ORGANS AFFECT THE CALCIFICATION OF THE TOOTH?

Ameloblasts in the enamel, odontoblasts in the dentin, cementoblasts in the alveolar periosteum.

WHAT ARE THE INTERGLOBULAR SPACES? LINES OF SCHREGER?

At the dento-cementum junction are seen small, irregularly shaped spaces called the interglobular spaces.

The lines of Schreger are the striations seen by reflected light due to the formation of the enamel prisms.

WHAT ARE THE FIBERS OF TOMES?

Branching processes of the odontoblasts in the dentinal canals.

WHAT IS AN ODONTOBLAST?

Tall columnar cells, situated vertically to the surface of the pulp. They send out long processes, the dentinal fibrils into the dentinal tubules.

WHAT ARE SUCCEDANEOUS TEETH?

Succedaneous teeth are those which erupt after the loss of the permanent set.

SUPERNUMARY TEETH?

Supernumary teeth are those erupting in excess of the natural number present.

WHAT IS THE EMBRYO?

The embryo is the union of the male and female germ cells.

IS THE SHEDDING OF DECIDUOUS TEETH PHYSIOLOGIC? DESCRIBE THE PROCESS.

Yes. The pressure of the erupting permanent teeth stimulate the osteoclasts into activity; a fluid is formed which absorbs the roots of the temporary teeth.

WHAT IS THE DIFFERENCE BETWEEN CEMENTUM AND BONE?

Cementum differs from bone in that it contains no canals and is formed by a special type of cell called cementoblast.

NAME THE PRINCIPAL MUSCLES OF MASTICATION.

Temporal, Internal and external Pterygoids, Masseter, and Buccinator.

CHAPTER II

PHYSIOLOGY

WHERE ARE THE TASTE BUDS LOCATED?

The taste buds are situated chiefly on the surface of the tongue, although some are scattered over the soft palate, blood in the lungs and exhaling carbon dioxide gas.

NAME THE NORMAL CONSTITUENTS OF THE BLOOD.

The plasma, red and white corpuscles, blood pletelets and some inorganic salts.

WHAT IS THE FUNCTION OF THE BLOOD?

To carry oxygen and nutriment to the tissues and to convey waste material to the excretory organs. It also aids in maintaining an even body temperature.

DESCRIBE THE PROCESS OF COAGULATION OF BLOOD.

Fibrin ferment or thrombrin acts upon the fibrinogen, the soluble albumin of the plasma, converting it into the solid fibrin. The fibrinogen and thrombrin are formed by the disintegration of the white corpuscles. The solid substances of the blood become entangled in the fibrin forming the clot.

WHAT IS THE SPECIFIC GRAVITY OF THE BLOOD?

About 1055.

WHERE ARE THE RED CORPUSCLES FORMED? (B) WHAT IS THEIR FUNCTION?

They are formed in the spleen and in the bone marrow. (b)
They carry oxygen from the lungs to the tissues and carbon dioxide from the tissues to the lungs.

WHAT IS HEMOGLOBIN? WITH WHAT DOES IT COMBINE?

Hemoglobin is the coloring matter of the blood. It combines with oxygen to form oxyhemoglobin.

WHAT IS LEUKOCYTOSIS?

It is an increase of the number of leukocytes above 10,000 in a cubic millimeter of blood.

WHAT IS BLOOD PRESSURE?

The pressure of the blood in the circulatory system.

WHAT IS (A) NORMAL PULSE RATE (B) NORMAL RESPIRATION?

(A) 72 to 85 per minute.

(B) 18 to 24 per minute.

WHAT IS THE PROCESS OF OSMOSIS? GIVE AN EXAMPLE.

Osmosis is the diffusion of liquids through a porous membrane. The passage of plasma through the capillary wall into the tissues.

WHAT IS THE NUMBER OF WHITE CORPUSCLES TO 1 C/C OF BLOOD?

Between 5,000 and 10,000.

WHAT IS RESPIRATION?

Respiration is the act of inhaling air for oxygenation of the blood in the lungs and exhaling carbon dioxide.

DEFINE ASPHYXIA; (B) TIDAL AIR; (C) APNEA; (D) DYSPNEA; (E) RESIDUAL AIR.

Asphyxia is a condition resulting from lack of oxygenation of the tissues.

Tidal Air: The normal flow of air in the lungs.

Apnea: Cessation of breathing due to mechanical excitation of the pulmonary plexus of the pneumogastric nerve.

Dyspnea: Difficult and rapid breathing.

Residual air: Air remaining in the lungs after a forced expiration and cannot be forced out.

WHERE IS THE CENTER OF RESPIRATION?

In that part of the brain called the Medulla Oblongata.

WHAT ORGANS ARE CONCERNED IN RESPIRATION?

The nose, larynx, trachea, bronchi and lungs.

NAME THE SECRETIONS OF THE ALIMENTARY CANAL.

Saliva, Gastric Juice, Pancreatic Juice, Bile and Succus Entericus.

DESCRIBE THE ACTION OF SALIVA UPON FOODS.

Saliva forms the bolus and lubricates it for swallowing. Its enzyme *ptyalin* acts upon starch converting it into maltose.

DESCRIBE SALIVA.

Saliva is a tasteless, odorless, somewhat ropy fluid with a specific gravity of 1002. It is normally alkaline. It is secreted by the parotid, submaxillary and sublingual glands.

NAME THE ENZYMES OF THE PANCREATIC JUICE AND GIVE THEIR ACTION.

Trypsin converts proteids into peptones.

Amylopsin changes starch into maltose.

Steapsin splits up fats into fatty acids.

Rennin coagulates milk.

WHAT IS AN AMYLOLYTIC FERMENT?

It is a ferment such as *amylopsin* that acts upon starch converting it into maltose.

DESCRIBE THE VARIETIES OF SALIVA.

The parotid saliva is a watery type containing a great deal of ptyalin.

The sublingual contains much mucin.

The submaxillary is a mixture.

WHAT CIRCUMSTANCES FAVOR DIGESTION?

Thorough mastication; sight and smell of well-prepared food; cheerfulness and a general healthy condition of the body.

BRIEFLY DESCRIBE GASTRIC DIGESTION.

Food reaching the stomach is mixed with the gastric juice and the mixture is called *chyme*. The ferment *pepsin* acts upon proteids converting them into *peptones*. The Hydrochloric acid is the necessary medium for the action of the *pepsin*. The digestion of starches continues for a while in the stomach. The chyme is gradually forced out of the stomach into the duodenum by peristalsis.

WHAT FERMENT IS CONCERNED WITH THE DIGESTION OF MILK?

The ferment *rennin* coagulates milk and changes caseinogen into casein. This ferment is found in the gastric and pancreatic juices.

WHERE ARE FATS ABSORBED?

In the small intestine.

WHAT IS CHYLE?

Chyle is the fluid lymph contained in the lacteals of the digestive tract.

DESCRIBE THE ORIGIN AND USES OF LYMPH.

Lymph originates in the lymph spaces surrounding the blood vessels and the lymphatic glands. It conveys the products of digestion; carries off excess fluid; acts as a reserve after hemorrhage, and is a lubricant and solvent.

WHAT IS GLYCOGEN?

Glycogen is derived from the digestion of carbohydrates and is stored away as a reserve fuel in the cells of the liver.

NAME THE FUNCTIONS OF THE LIVER.

The formation of bile; the formation of glycogen; the formation of urea; the decomposition of red blood corpuscles.

WHAT IS THE PORTAL CIRCULATION?

Blood collected from the capillaries of the spleen, stomach and intestines is carried by the portal vein to the liver. It is returned by the *hepatic vein* to the inferior vena cava.

DESCRIBE BILE AND ITS USES.

Bile is a greenish liquid secreted by the liver, alkaline in reaction. It aids in the digestion and absorption of fats and acts as an intestinal antiseptic.

NAME THE DIVISIONS OF THE ALIMENTARY TRACT.

Mouth, pharynx, oesophagus, stomach, small intestine, large intestine.

BRIEFLY DESCRIBE THE ACT OF DEGLUTITION.

The mandible is closed by the muscles of mastication. The tongue, pressed against the hard palate, forces the bolus back into the pharynx. The base of the tongue and a contraction of the palatine arches prevent a return of the bolus to the mouth. A contraction of the three constrictor muscles of the pharynx sends the food into the oesophagus. The peristaltic action of the oesophageal muscles forces it into the stomach. The first part of the act is voluntary, the rest is reflex in character.

NAME THE MUSCLES OF DEGLUTION.

Orbicularis oris, muscles of mastication, mylohyoid, levator veli palati, constrictors of the pharynx, oesophageal muscles.

WHAT IS THE FUNCTION OF (A) MASSETER MUSCLE (B) TEMPORAL MUSCLE (C) THE PTERYGOID MUSCLES?

The *Masseter* elevates the mandible, assisted by the *temporal* and *internal pterygoid*. The *external pterygoid* moves the mandible downward and forward.

DEFINE ABSORPTION.

Absorption is the process by which the digested food is taken from the intestines and carried into the blood.

WHERE IS FOOD CHIEFLY ABSORBED?

Food is chiefly absorbed by the villi of the small intestines.

WHERE DOES THE ABSORPTION OF WATER TAKE PLACE?

In the small and large intestines.

DIFFERENTIATE SECRETION AND EXCRETION.

A *secretion* is the product of the activity of the glands and follicles. Example: Saliva.

Excretion: The separation of the waste products of an organ or of the body as a whole, out of the blood. Example: Urine.

DEFINE METABOLISM.

Metabolism is the constructive and destructive changes in the tissues of the organism.

DEFINE ASSIMILATION.

Assimilation or anabolism is the process by which nutrient material is converted into protoplasm.

HOW DOES THE NERVOUS SYSTEM INFLUENCE METABOLISM?

The different centers of the brain through the motor and sensory nerves regulates and controls the action of all organs within the body.

DISCUSS THE RELATION OF NUTRITIVE VALUE TO CALORIC VALUE.

Caloric value is the heat producing or fuel value of a food; fats represent the highest caloric value. The nutritive value of a food is determined by the proportion of alimentary principles it contains to the whole, its ease of digestibility and assimilation. The nutritive value of proteids and carbohydrates is about equal.

DEFINE CALORIE.

The calorie is the unit for measuring heat. It is the amount of heat that is necessary to raise 1000 grams of water through 1 degree Centigrade.

WHAT TYPE OF STIMULATION IS MOST EFFECTIVE IN ITS INFLUENCE ON THE FLOW OF SALIVA? ILLUSTRATE AND EXPLAIN.

Reflex stimulation. The reflex is begun by the sight, thought or smell of food acting as a stimulant to the sensory or *efferent* nerves; these impulses are carried to a nerve center in the brain and from thence motor impulses are transmitted through *efferent* nerves to the salivary glands.

WHAT DO YOU UNDERSTAND BY THE TERM NUTRITION?

Nutrition means the taking in of food principles and their conversion into living protoplasm. It includes digestion, absorption, metabolism and excretion.

DISCUSS THE RELATION OF MASTICATION TO NUTRITION.

Mechanical: Food that is thoroughly triturated is acted upon more readily by the digestive secretions and better assimilated.

Chemical: During mastication the ptyalin of the saliva acts upon starches converting them into maltose.

WHAT ARE VITAMINS?

Vitamins are unknown food elements contained in fresh, uncooked foods. They have been classified as fat-soluble, water soluble and anti-scorbutic. Fresh vegetables and unpasteurized milk are believed to contain vitamins.

DEFINE FOOD.

Food is any substance taken into the body that provides material for the growth of the young, supplies the waste of metabolism and supplies heat and energy.

DISCUSS THE PLACE OF WATER IN THE DIETARY.

Water is essential to life constituting about two-thirds of the body weight. It supplies fluid for the tissues, acts as a solvent for food and helps to maintain an even body temperature.

HOW ARE FOODS CLASSIFIED?

Foods are classified as (1) inorganic: water and mineral salts; organic: Carbohydrates, fats and proteins.

WHAT IS THE RELATION OF DIET TO NUTRITION?

For the proper nourishment of the body the diet must contain the various foods in proper proportion. Proteids are necessary for tissue repair; salts neutralize acids, assist in the formation of some of the secretions and complete calcification. Fats are a reserve food and carbohydrates supply heat and energy.

WHY IS MILK SUCH AN IDEAL FOOD?

Milk contains all the principles necessary to sustain life and because of its ease of digestibility is especially adapted to the young.

WHAT IS AN ENZYME?

An enzyme or ferment is a substance which acts upon other substances to change their character without changing its own.

INDICATE THE MOST IMPORTANT CHANGES THROUGH WHICH THE LEADING FOODS PASS AS THEY PROCEED ALONG THE ALIMENTARY TRACT.

In the mouth carbohydrates are acted upon by the ptyalin of the saliva and converted into maltose; their digestion is completed in the small intestine by the amylase of the pancreatic juice which changes them into maltose and dextrose.

Proteids are changed by the gastric juice in the stomach into peptones and albuminoses, and in the small intestines are further converted into peptones by the action of the pancreatic juice.

Fats are digested in the small intestine by the action of steapsin, which splits them up into fatty acids and glycerin.

WHAT IS THE RELATIONSHIP OF DIET TO DENTAL CARIES?

Proper diet is believed to be a great factor in the prevention of dental caries.

—Course, fibrous foods by the friction produced upon the tooth surfaces during their mastication help to forestall caries. The resistance of solid foods promotes growth and development of the teeth and jaws of children and increases the circulation in these parts in adults.

WHY DOES A DIET RICH IN STARCHES PRODUCE DENTAL DECAY?

Sugars remaining in the mouth are fermented by a class of micro-organisms which produce lactic acid. The acid dissolves out the mineral contents of the teeth with consequent disintegration.

HOW IS THE SENSE OF TASTE PRODUCED?

The sense of taste is produced by food coming in contact with the taste buds. The taste buds are end organs of nerve filaments derived from the facial, trifacial and glossopharyngeal nerves and found chiefly on the surface of the tongue.

EXPLAIN THE PHENOMENA OF SENSATION.

The end organ at first receives the stimulus which is conveyed to the brain. A sensation or feeling is felt and interpreted in the brain and projected back to the end organ for fulfillment.

WHAT ARE THE FUNCTIONS OF THE PERIODONTAL MEMBRANE?

- (1) It serves as a cushion and imparts sense of touch to the tooth.
- (2) It supplies nourishment to the cementum.

GIVE THE FUNCTIONS OF THE CEMENTUM.

The cementum holds the tooth in position by its attachment to the surrounding tissues. It is also a source of vitality after the death of the pulp.

WHAT ARE THE FUNCTIONS OF THE PULP?

(1) The formation of dentin. (2) It receives various sensations from the dentinal fibrils transmitting them to the nervous system.

WHAT ARE THE ACCESSORY FUNCTIONS OF THE TEETH?

They assist in speech and deglutition.

DEFINE THE TERM NEURONE.

Neurone is a term ascribed to cells forming the nervous system.

WHAT IS A REFLEX?

A reflex is an impulse in response to stimulation from the periphery without of necessity involving the brain.

WHAT ARE THE DIFFERENT MOVEMENTS EXECUTED DURING THE PROCESS OF MASTICATION AND WHAT MUSCLES TAKE PART IN EACH MOVEMENT?

An up and down movement, a forward movement, and a lateral movement. The Masseter, Temporal, Interior Pterygoid, Exterior Pterygoid and Buccinator muscles.

The masseter and temporal muscles bring the lower jaw against the upper. The external pterygoid brings the mandible forward; they all assist in the lateral movement; the following muscles depress the lower jaw: genio-hyoid, mylo-hoid, genio hyo-glossus and anterior belly of digestic.

DEFINE THE TERM PERISTALSIS.

The term peristalsis signifies a wave-like or vermicular movement.

IN WHICH PART OF THE DIGESTIVE CHANNEL IS THIS MOVEMENT IN EVIDENCE?

It occurs in the stomach, large intestines, small intestines in which they are the most marked.

NAME THE DIFFERENT EXCRETORY CHANNELS.

The skin, kidneys, intestinal and respiratory tracts.

WHAT IS THE PURPOSE OF THE KIDNEYS?

The purpose of the kidneys is to remove from the blood, water and waste substances.

CHAPTER III

(BACTERIOLOGY & STERILIZATION)

DEFINE BACTERIOLOGY.

Bacteriology is the science of micro-organic life or of bacteria.

GIVE AN EXAMPLE OF THE THREE DIFFERENT FORMS OF BACTERIA.

Cocco: Staphylococcus Pyogenes Aures.

Baccilli: Bacillus Tuberculosis.

Spirilla: Spirochetes Pallidum.

WHAT ARE SPORES?

A spore is an oval, refractive body appearing in the protoplasm of bacteria and capable of developing into a bacterium.

DEFINE KOCH'S LAW.

Koch's law is to prove whether an organism is pathogenic or not.

- (1) It must be cultivated for several generations in artificial culture media.
- (2) The pure culture upon inoculation into healthy animals must produce the disease in question.
- (3) The same micro-organism must again be found in the tissues, blood or secretions of the inoculated animal.

WHAT IS A CULTURE MEDIA? GIVE THE MOST IMPORTANT ONES.

Any substance in which micro-organisms may be cultivated. Agar-agar, blood serum, milk, bouillon, potato.

HOW WOULD YOU DISINFECT METAL INSTRUMENTS? GLASS SYRINGES? RUBBER DAM?

Metal instruments may be disinfected by exposing them to the

action of formaldehyde for ten minutes, or immersing them in alcohol for twenty minutes.

Glass syringe parts may be placed in a 1:1000 sol. of bichloride of mercury for about twenty minutes.

Rubber dam should first be washed with soap and warm water, followed by alcohol and cold water.

DEFINE: (A) INFECTION; (B) TOXIN; (C) ANTI-TOXIN.

Infection is the successful invasion of micro-organisms.

Toxins are the products, more or less poisonous, given off by bacterial cells.

Antitoxins are specific bodies obtained from the serum of immunized animals which combine with and neutralize toxins.

NAME THREE EFFICIENT DISINFECTANTS.

Formaldehyd, carbolic acid and bichlorid of mercury.

WHAT IS MEANT BY STERILIZATION?

Sterilization means the complete destruction of bacteria and their spores.

DEFINE: (A) PARASITE; (B) SAPROPHYTE; (C) PYOGENIC; (D) LEUKOCYTE.

- (a) Parasites are animal or vegetable organisms which subsist upon other living organisms.
- (b) Saprophytes are vegetable organisms living upon dead organic matter.
- (c) Pyogenic refers to pus-producing organisms.
- (d) Leukocytes are the white or colorless corpuscles of the blood.

WHAT ARE (A) AEROBIC BACTERIA AND (B) ANAEROBIC BACTERIA?

Aerobic bacteria have the property of developing in oxygen.

Anaerobic bacteria are incapable of growing in uncombined oxygen.

WHY IS THE MOUTH A FAVORABLE PLACE FOR THE DEVELOPMENT OF BACTERIA?

The mouth is a favorable place for the development of bacteria because it contains all the conditions necessary for their growth, i.e., oxygen, moisture, darkness, body temperature and food particles.

DEFINE: (A) DISINFECTANT, (B) ANTISEPTIC.

A disinfectant is a chemical agent that destroys bacteria and their spores.

An antiseptic is an agent that retards the growth and development of bacteria.

HOW DO DISEASE GERMS LEAVE THE BODY?

Disease germs leave the body by the skin, kidneys, intestinal and respiratory tract.

STATE THE DANGERS TO A HYGIENIST OF WOUNDING THE HAND WHILE OPERATING.

Because of the presence of vast numbers of bacteria there is always the danger of infection.

NAME FIVE DISEASES CAUSED BY MICROORGANISMS.

Diphtheria, Typhoid Fever, Tetanus, Septicemia, Pneumonia.

DEFINE: (A) NATURAL IMMUNITY, (B) ACQUIRED IMMUNITY.

Natural immunity is the ability of certain individuals and races to resist certain diseases at all times.

Acquired immunity is set up in an individual (1) As the sequence of an attack of some infectious disease such as scarlet fever, (2) by the injection of antitoxins, vaccination, inoculation, etc.

WHAT IS THE MOST EFFECTIVE METHOD OF STERILIZATION?

Heat—fire, dry heat or hot air, live steam, steam under pressure and boiling.

HOW DO BACTERIA MULTIPLY?

By direct division. (2) By the development of spores.

IN WHAT WAY MAY BACTERIA BE USEFUL IN FOODS?

Bacteria may be useful in food by producing ferments whose action changes the ingredients of the food into simpler and more staple substances. This illustrated by the action of the *Bacterium Lactis* on milk to form lactic acid.

WHAT PRECAUTIONS SHOULD A HYGIENIST TAKE WHILE OPERATING UPON A PATIENT WITH SYPHILIS?

She should wear rubber gloves. Before putting on the rubber gloves the hands should be covered with a 25% calomel ointment. Afterwards the hands should be scrubbed and washed in alcohol. Articles such as used cotton and towels should be destroyed.

WHAT IS SYPHILIS CAUSED BY AND HOW MAY IT MANIFEST ITSELF IN THE MOUTH?

Syphilis is caused by the entrance into the system of micro-organism called *Spirochetes Pallidum*.

It may appear as a hard chance on the lip (primary stage) or so-called mucous patches may arise on the mucous membrane of the oral cavity. These are slightly convex, grayish white elevations which secrete a highly infectious discharge.

DEFINE: (A) ANTIGEN; (B) AMBOCEPTOR; (C) THE COMPLEMENT.

Antigen: The extract of the liver of a fetus.

Amboceptor: Serum from rabbit immunized with sheep's red blood corpuscles.

The Complement: Normal serum from a guinea pig.

WHAT IS PHAGOCYTOSIS?

Certain white cells in the blood, mainly leukocytes, have the power of taking up and destroying bacteria when they have entered the circulation.

WHAT IS ESSENTIAL TO THE LIFE OF BACTERIA?

A suitable temperature; the presence of oxygen (usually); sufficient moisture; darkness; certain organic and inorganic matter.

HOW DO DISEASE GERMS ENTER THE BODY?

Through abraded skin surfaces, the intestinal and respiratory tracts.

ARE BACTERIA FOUND IN THE AVERAGE WELL-KEPT MOUTH?

Yes.

CHAPTER IV

DENTAL CARIES AND MALOCCLUSION

DEFINE DENTAL CARIES.

Dental caries is the molecular disintegration of tooth structure.

DESCRIBE THE FORMATION OF THE BACTERIAL PLAQUE.

Certain bacteria acting upon sugar split it up into lactic acid. At the point of acid production in the saliva there occurs a precipitation of insoluble mucin. The action is started by the lodgement of organisms upon a tooth surface, where they are allowed to multiply in protected locations and the process continues until what we call a bacterial plaque is formed.

GIVE MILLER'S THEORY OF DENTAL CARIES.

Bacteria acting upon carbohydrate foods produce lactic acid. The acid attacks and destroys the enamel, exposing the dentin. Bacteria invade and subsist upon the organic matter of dentin.

WHAT IN YOUR OPINION IS THE MOST IMPORTANT FACTOR IN THE PREVENTION OF CARIES?

Aside from the influence of heredity the most important factors are proper diet and extreme cleanliness.

WHAT SURFACES OF THE TEETH ARE MOST SUSCEPTIBLE TO DENTAL CARIES?

The approximal and occlusal surfaces.

WHAT CAUSES THE PAIN UPON CONTACT OF SWEETS WITH CERTAIN TEETH?

The fermentation of the sugar by the bacteria irritates the dentinal fibrils which convey sensation to the pulp.

WHAT IS THE MOST SUSCEPTIBLE PERIOD TO DENTAL CARIES?

During childhood and adolescence.

NAME TWELVE CAUSES OF DENTAL CARIES INDICATING WHICH ARE DIRECT OR INDIRECT, LOCAL OR CONSTITUTIONAL.

DIRECT OR LOCAL: Oral acidity, food deposits upon the teeth, abrasion or injury to enamel, acid erosions, malocclusion, partial plates, bridgework, etc.

INDIRECT OR CONSTITUTIONAL: Pregnancy, debilitating diseases and low vital resistance.

WHICH OF THE TEETH SURFACES ARE LEAST SUSCEPTIBLE TO CARIES AND WHY?

The labial, lingual and buccal surfaces. Because these are subjected to the cleansing action of friction by the tongue, the lining mucous membrane of the lips and cheek surfaces and are kept free of bacterial invasion by the friction of rough or fibrous food materials.

ARE TEETH DENSE IN STRUCTURE LESS LIABLE TO DECAY THAN SO CALLED SOFT OR IMPERFECTLY CALCIFIED TEETH? EXPLAIN.

NO. "Any tooth will decay in a mouth where the conditions causing decay are active and no tooth will decay whatever its structure may be in a mouth where the conditions causing decay are not active."

DIFFERENTIATE BETWEEN EROSION AND CARIES OF TEETH.

Erosion is a destruction of tooth structure brought about by the presence in the mouth of an acid formed in the mouth, exuded into the mouth, or taken into the mouth. Erosions are generally found at the necks of teeth where the enamel is the thinnest. *Caries* is a disease of the teeth caused by the local destruction of the hard tissues of the teeth by the solvent action of lactic acid followed by the invasion of bacteria.

WHAT IS TARTAR?

Tartar is a general term used to designate the various deposits found upon the teeth. They are composed of food debris and dead bacteria held together by mucin.

WHAT IS MEANT BY SO-CALLED STRINGY SALIVA?

Saliva rich in mucin which gives it a ropy, adhesive quality.

DOES MALOCCLUSION PREDISPOSE TO DENTAL CARIES? EXPLAIN.

Teeth without normal occlusal contact are more liable to decay because of the loss of friction and because they are more difficult to keep clean.

WHAT IS YOUR METHOD OF PREVENTING DECAY OF THE 1ST MOLARS OF CHILDREN?

By cleaning the sulci of food debris; sterilizing with silver reduction solutions or alcohol; then placing soft, rapidly setting cement in the sulci and trimming it by the finger tip dipped in water.

HOW DOES THE DECAY OF CHILDREN'S TEETH DIFFER FROM THAT OF ADULTS?

The factors causing the decay are the same; but the greater amount of cartilaginous matter in children's teeth causes it to assume under decay a leathery, brownish appearance. The decay of adult's teeth is more molecular and is much darker in appearance because of greater absorption.

DEFINE MALOCCLUSION.

Malocclusion is any deviation of the teeth or arches from normal relation.

WHAT IS MEANT BY (A) SUPRA-OCCLUSION, (B) INFRA-OCCLUSION, (C) MESIAL-OCCLUSION?

Supra-occlusion means that a tooth has erupted to an abnormal height in its socket.

Infra-occlusion means that a tooth has not erupted to its normal height in its socket.

Mesial-occlusion means that the tooth crown is mesially of the position which it should normally occupy.

WHY SHOULD A DENTAL HYGIENIST HAVE SOME KNOWLEDGE OF ORTHODONTIA?

A dental hygienist should have some knowledge of orthodontia so that she may diagnose conditions of malocclusion and intelligently point out those factors which bring about or aggravate malocclusions.

GIVE SOME CAUSES OF IRREGULARITIES.

The premature loss of deciduous teeth. Extraction of permanent teeth, pernicious habits, lack of use.

GIVE ANGLE'S CLASSIFICATION.

Class I. Arches in normal mesio-distal relation.

Class II. Lower arch distal to normal in relation to upper.

Division 1. Protruding upper anterior teeth.

Subdivision—Arch unilaterally distal.

Division 2. Retruding upper anterior teeth.

Subdivision—Arch unilaterally distal.

Class III. Lower arch mesial to normal in its relation to upper.

Subdivision—Arch unilaterally mesial.

DEFINE (A) OCCLUSION; (B) INCLINE PLANE.

Occlusion means the relationship of the teeth when the jaws are closed.

The incline plane is the sloping side of a tooth cusp.

WHAT EFFECT DOES A PACIFIER HAVE UPON THE DEVELOPMENT OF THE TEETH?

A pacifier brings about a condition of malocclusion characterized by a protrusion of the upper front teeth.

WHAT IS THE RESULT OF THE PREMATURE LOSS OF THE TEMPORARY TEETH?

The space made by the loss of the temporary tooth closes in so that the incoming permanent tooth erupts out of alignment in a position of malocclusion.

DEFINE ORTHODONTIA.

Orthodontia is the science of the treatment of malocclusion.

WHAT CLASS OF MALOCCLUSION COMPRISES THE GREATEST NUMBER?

Class 1 or neutroclusion.

STATE THE EFFECT OF MASTICATING FOOD ON ONE SIDE OF THE MOUTH ONLY.

In children one-sided mastication causes an uneven development of the facial and some of the cranial bones. In adults disuse of the teeth predisposes to caries, pyorrhea and malocclusion.

WHAT IS THE RELATION OF THE FIRST PERMANENT MOLARS IN NORMAL OCCLUSION?

In normal occlusion the mesio-buccal cusp of the upper first molar occludes in the buccal groove of the lower first molar.

WHAT TEETH WOULD YOU USE AS GUIDES TO OCCLUSION WHEN THE FIRST PERMANENT MOLARS ARE ABSENT?

The permanent cuspids.

STATE THE DIFFERENT POSITIONS OF MALOCCLUSION THAT A TOOTH MAY OCCUPY.

Labial or buccal occlusion, lingual occlusion, mesial occlusion, occlusion, distal occlusion, supra-occlusion, infra-occlusion, torso-occlusion.

CHAPTER V

(DENTAL PATHOLOGY)

DEFINE (A) PERICEMENTITIS; (B) GINGIVITIS; (C) PULPITIS.

Pericementitis is an inflammation of the Peridental Membrane.

Gingivitis is an inflammation of the gum tissue.

Pulpitis, an inflammation of the dental pulp.

WHAT IS MEANT BY CONGESTION?

Congestion means an increased amount of blood to a part above normal. It is classified as *active* and *passive*.

WHAT ARE THE NECESSARY FACTORS IN SUCCESSFULLY TEACHING MOUTH HYGIENE TO VERY YOUNG CHILDREN?

A sympathetic attitude, clearness and brevity.

WHAT IS ODONTALGIA? Name and Describe varieties.

Odontalgia is a pain in or about a tooth or teeth.

Varieties: *Pulpitis*, an inflammation of the pulp.

Pericementitis or *periodontitis*, an inflammation of the peridental membrane.

NAME A REMEDY FOR (A) Pulpitis (B) PERICEMENTITIS

Oil of Cloves.

Tincture of Iodine.

Define NEURALGIA.

Neuralgia means pain along the distribution of a sensory nerve.

WHAT WOULD BE YOUR INSTRUCTIONS TO A PATIENT WITH SEVERE PAIN IN OR NEAR THE TEETH?

To consult a dentist for treatment.

DEFINE PATHOLOGY.

Pathology is that branch of science which deals with the study of the disturbance of function or structure in disease.

GIVE THE CARDINAL SIGNS OF INFLAMMATION.

Redness, pain, heat and swelling.

DEFINE STOMATITIS AND GIVE THE VARIETIES.

Stomatitis is an inflammation of the mucous membrane of the mouth.

Varieties: Catarrhal, Aphthous, Thrush, Gangrenous, Mercurial and Syphilitic.

DEFINE AND CLASSIFY INFLAMMATION.

Inflammation is the response of living tissue to injury. It is classified as acute and chronic.

DEFINE (A) SUPPURATION; (B) SEPTICEMIA.

Suppuration means a flow of pus.

Septicemia means general blood poisoning.

HOW DO WOUNDS HEAL?

Wounds heal (1) By primary healing or *healing by first intention*. (2) By secondary healing, or healing by second intention, or healing by granulation tissue.

DESCRIBE HEALING BY FIRST INTENTION.

The blood clot is gradually replaced by connective tissue and the surface by epithelial tissue if the sides of the wound are in close contact. Otherwise more connective tissue is needed to span the breach and what is known as a cicatrix is formed. The crust on the top of the wound is called the *scab*. The process is accompanied by the various stages of inflammation and changes in the circulation.

DEFINE: (A) NECROSIS; (B) SEQUESTRUM.

Necrosis is the death or molecular destruction of bone.

A sequestrum is a portion of dead bone thrown off during necrosis.

WHAT IS PERIOSTITIS?

Periostitis is an inflammation of the membrane surrounding bone.

WHAT IS PYORRHEA ALVEOLARIS?

It is a progressive disease of the alveolar process and pericementum, accompanied by a shrinkage of the gums and loosening of the teeth.

GIVE SOME CAUSES OF PYORRHEA.

Uncleanliness of the mouth, poorly constructed fillings, ill-fitting crowns, bridges, etc., malocclusion causing food impactions.

WHAT ARE THE SYMPTOMS OF PYORRHEA?

Tender, swollen and bleeding gums, a discharge of pus, recession of gums and the formation of pockets, loosening of the teeth.

WHAT ARE CHIEF FACTORS IN THE PREVENTION OF PYORRHEA?

Strict cleanliness of the mouth, especially the removal of all irritants from the gum margin. Proper occlusion and proper contact points are also important.

IS PYORRHEA CONSIDERED A CURABLE DISEASE?

Yes, if taken in time.

CHAPTER VI

ORAL PROPHYLAXIS

DEFINE DENTAL PROPHYLAXIS.

Dental prophylaxis is that scientific effort either operative or therapeutic which tends to prevent diseases of the teeth and their surrounding tissues.

STATE THE RELATIONSHIP OF THE COLOR OF THE GUMS TO THEIR HEALTH.

The gums in health are a light coral pink of characteristic hue. Local irritants will cause them to take on a deep red color—the sign of congestion.

WHAT VARIETY OF TARTAR IS FREQUENTLY FOUND BENEATH THE GUM MARGIN?

A dark brown deposit called serual calculus. It is precipitated from the blood serum deriving its color from the hemoglobin.

WHY SHOULD DEPOSITS BE REMOVED FROM THE NECKS OF TEETH?

Because if they are allowed to remain they will set up irritation and infection of the gingivae and pericementum will follow.

IS BLEEDING OF GUMS BENEFICIAL DURING INSTRUMENTATION? EXPLAIN.

Yes. When the gums bleed readily during instrumentation it shows that the capillaries are congested; therefor the more blood allowed to escape from the gingivae the sooner the congestion will be relieved.

WHAT IS THE VALUE OF MASSAGE OF THE GUMS?

Massage of the gums stimulates the circulation in them and also in the pericementum. This results in a better oxidation and elimination of waste products.

GIVE FOUR REASONS WHY THE FIRST PERMANENT MOLAR IS THE MOST IMPORTANT TOOTH.

(1) It is the first permanent tooth to erupt and is the key to occlusion. (2) It has the greatest triturating surface. (3) It is essential to the normal development of the arches. (4) It serves as a prop to the jaws while the deciduous teeth are being shed.

WHAT IS MEANT BY "GUM MARGIN"?

The level of gingiva at the cervix of a tooth is referred to as the gum margin.

WHAT IS A POCKET?

A pocket is a space around a tooth caused by the destruction of alveolar process and pericementum.

WHAT IS YOUR METHOD OF LOCATING BACTERIAL PLAQUES?

By the use of disclosing solutions or solutions of iodine. These cause the plaques to assume a darker appearance.

WHY SHOULD THE GREEN STAINS ON CHILDREN'S TEETH BE REMOVED?

Because they allow the accumulation of food deposits, bacterial plaques, etc., predisposing to caries.

WHAT CAUSES THE GREEN STAINS ON CHILDREN'S TEETH?

The action of the *Bacillus Leptothrix*.

WHAT IS THE RESULT OF THE EARLY EXTRACTION OF THE DECIDUOUS TEETH?

Malocclusion of the permanent teeth.

WHY IS YOUR METHOD OF BRUSHING THE TEETH HELPFUL?

Because it removes food debris from the tooth surfaces without forcing it into the approximal spaces. It also promotes health of the gum tissues by gently stimulating the circulation.

WHAT INSTRUCTIONS WOULD YOU GIVE A PATIENT ON HIS FIRST VISIT TO YOUR OFFICE?

After examining the patient's mouth and carefully cleaning the teeth the patient should be given full instructions in the home care of the mouth. 1—Use of toothbrush. 2—Use of floss silk between the teeth, and 3—Use of lime water for a mouth wash.

Brushing: 1st. Outside surfaces of the teeth and gums of both the upper and lower jaws—in a rapid circular motion so as to stimulate the circulation and the teeth cleansed of food. Do not go crosswise. 2nd. Inside surfaces of the teeth and gums and roof of the mouth—with bristles of brush pointing upward, brush the roof of the mouth, inside gums and surfaces of teeth, use rapid in and out stroke. Do same on lower inside surfaces with bristles turned down. 3rd. Top or grinding surfaces—Brush with in and out stroke, food must be removed from the grooves of the molars.

Use of Floss Silk: Four fifths of decay takes place on the surfaces between teeth and surfaces on which you chew. Floss silk is the only way to remove food from these surfaces. Force the floss carefully between the teeth and rub back and forth against the surface of each tooth to loosen and remove food and clean the surfaces.

Lime Water: With new patients and those with tender gums it can be diluted. When taken in the mouth it should be forced back and forth until it foams. Rinse with clear water. The patient should be told of the proper diet during infancy

and childhood, the important substance for growth of bones and teeth is calcium phosphate. Milk contains all the necessities for infant growth, when the temporary teeth have erupted, foods containing a large amount of calcium are required, such as milk, cheese, vegetables and whole grains (unrefined).

Beware of sugar—Free sugar is the chief cause of dental decay and dental decay is the chief cause of serious illness.

STATE WHAT A DENTAL HYGIENIST MAY DO UNDER THE DENTAL LAWS.

She may "remove calcareous deposits, accretions and stains from the exposed surfaces of the teeth and directly beneath the free margin of the gum."

WHAT WOULD YOU DO IN A CASE WHERE THE GUMS WERE BADLY CONGESTED?

Determine the cause. If the congestion is due to the presence of the deposits at the gum margin (food debris) they should be removed. Applications of iodine and instrumentation will relieve congestion. This may be supplemented by gum massage and the proper use of the tooth brush.

STATE YOUR METHOD OF CLEANING THE APPROXIMAL SURFACES OF THE TEETH.

Plaques should first be located with iodine applications. The surfaces may then to a large extent be cleaned with a small sharp orange wood point, charged with pumice. The contact point and area beyond may be cleaned by dental floss; the floss is wet, charged with pumice and carefully worked back and forth over the surface.

STATE THE ADVANTAGES OF THE PORTE POLISHER OVER THE USE OF THE DENTAL ENGINE.

The porte polisher is better adapted to the gingival margin as well as the approximal surfaces. It is believed that the pressure exercised in its use stimulates circulation in the parts. Because of better control it is less apt to injure the soft tissues and is less abrasive to the enamel.

CHAPTER VII

(MISCELLANEOUS)

DEFINE ANESTHESIA.

Anesthesia may be defined as insensibility to pain or sensation.

WHAT SHOULD BE THE PREPARATION OF A PATIENT FOR NITROUS OXIDE ANESTHESIA?

A towel or apron is used to protect the patient's clothing. All foreign bodies should be removed from the mouth such as plates, removable bridges, etc. The clothing should be loosened to permit the easy, natural respiration. A kindly, cheerful word helps to dispel the psychology of fear.

DEFINE SYNCOPE AND GIVE TREATMENT.

Syncope is a sudden anemia of the brain caused by fright, fear of pain. Place head low; administer smelling salts, aromatic spirits of ammonia and apply heat to body.

STATE THE PRINCIPAL OF THE X-RAY.

The rays passing through a substance register the relative density and opacity of the contained objects upon the film by means of shadows. The shadows determine the shape, position, etc., of the various objects.

WHAT IS YOUR PROCEDURE WITH A FILM AFTER IT IS EXPOSED.

It is developed and allowed to dry. After it is mounted, the patient's name, date and position of tooth or area are noted.

MENTION THE DANGER SIGNS DURING ANESTHESIA.

Cyanosis, failure of respiration, failure of pulse and collapse.

WHAT IS MEANT BY SURGICAL SHOCK?

Surgical shock is a sudden depression of the vital powers, due to reaction upon the nerve centers.

WHAT IS A LOCAL ANESTHETIC? NAME ONE, DESCRIBE ITS PREPARATION.

A local anesthetic is one which will produce anesthesia or numbness of a part. NOVOCAINE. A solution of from 1 to 2 per cent may be used. Suprarenin extract is added to it and it is boiled before using.

WHAT PRECAUTION SHOULD BE TAKEN IN THE USE OF LOCAL ANESTHETICS?

They should be rendered sterile by boiling. A sterile needle and syringe should be used. The part should be painted with iodine.

WHAT ARE ADENOIDS? OF WHAT INTEREST ARE THEY TO THE DENTAL HYGIENIST?

Adenoids is the term used to describe hyper-trophied lymphoid tissue in the naso-pharynx.

They are of interest to the dental hygienist inasmuch as they commonly cause mouth breathing which in children results in an extreme type of malocclusion characterized by narrowed arches, protruding front teeth, etc. The dental hygienist who learns of the presence of adenoids should advise parents of their effect upon the arrangement of the teeth.

WHY SHOULD MALOCCLUSION BE TREATED?

Malocclusion should be treated to restore the normal functioning of the teeth. Malposed teeth are more susceptible to caries and diseases of the gums, periodontal membrane, etc. Altered facial expression is often prevented or corrected by orthodontic treatment.

TO WHAT IS SENSATION IN THE DENTIN DUE?

Sensation in the dentin is due to an irritation of the protoplasmic contents of the dentin tubules.

DBL

JAN 26 1922

WU 18 L581a 1922

50510370R



NLM 05262551 4

NATIONAL LIBRARY OF MEDICINE